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REMARKS

The following remarks are submitted to address the issues raised in the Office Action mailed August 26, 2003.

Claims 1-8, 10-17, 27-32, and 41-50 are currently pending in the application. Claims 1-3, 5-7, 27, 41-44, 46, and 48-50 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,637,341 to Switall (hereinafter "Switall"). Claims 1-3, 5-7, 27, 41-44, 46, and 48-50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,192,252 to Paul (hereinafter "Paul") in view of Switall. Claims 3, 4, 43, and 44 stand alternatively rejected under 35 U.S.C. § 103(a) as being unpatentable over Switall as applied to claim 1 or alternatively over Paul and Switall as applied above, and further in view of U.S. Patent No. 5,405,443 to Akimoto et al. (hereinafter "Akimoto"). Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Paul and Switall as applied to claim 1 and 27 above, and further in view of U.S. Patent No. 3,920,431 to Reese (hereinafter "Reese"). Claims 10-13, 15, 17, 28, 30, 31, 32, and 47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Paul, Switall, and Reese as applied to claim 8 or Paul and Switall as applied to claims 27 and 43 above, and further in view of U.S. Patent No. 3,848,565 to Schweppe (hereinafter "Schweppe"). Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Paul, Switall, Reese, and Schweppe as applied to claim 10, and further in view of U.S. Patent No. 3,401,542 to Evans (hereinafter "Evans"). Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Paul, Switall, Reese, and Schweppe as applied to claim 15, and further in view of U.S. Patent No. 4,192,663 to Schmandt (hereinafter "Schmandt"). Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over

Paul, Switall, Reese, and Schweppe as applied to claim 28 above, and further in view of Akimoto. Claims 28, 30, and 31 stand alternatively rejected under 35 U.S.C. § 103(a) as being unpatentable over Switall as applied to claim 27, and further in view of Schweppe. Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Switall and Schweppe as applied to claim 28, and further in view of Akimoto.

Applicants have amended claim 27 to correct the accidental omission of the word “local” to modify “reservoir” in claim 27. Applicants submit that this correction should not be viewed as narrowing the scope of claim 27 as Applicants submit that it was clear to which reservoir the claim was referring.

Applicants respectfully request consideration of the application in view of the following remarks.

Dependent Claims

In responding to the claim rejections below, Applicants submit that the dependent claims are patentable based on their dependency from independent claims, which Applicants argue are patentable. Thus, in many instances, Applicants have not provided separate remarks specifically directed to the Examiner’s grounds for rejecting the dependent claims. Applicants’ failure to comment on or otherwise traverse the Examiner’s rejection of the dependent claims should not be viewed as agreement, on the part of the Applicants, with the Examiner’s grounds for rejection.

General Comments

The present application is directed to applicators for applying at least a partial coating of a solution to a filament and to systems for supplying and applying at least a partial coating of a solution to a filament. Embodiments of the present invention provide systems, methods, and devices for applying an at least partial coating of a solution of a known composition to passing filaments, while eliminating the need to collect and recirculate excess solution, preventing the solution from overflowing the applicator reservoir and becoming wasted, and shielding the solution in the reservoir from contamination.

Embodiments of Applicants' invention also allow for the accurate measurement of a solution level in a first reservoir by providing a second reservoir with a solution level that is indicative of the solution level in the first reservoir. When a moving applicator surface is positioned in a solution, or near the surface of a solution, in the first reservoir, splashing and other surface irregularities may occur, which can make it difficult to determine the solution level in the first reservoir using a detector. Embodiments of the present invention advantageously provide a second reservoir that contains a solution with a solution level indicative of the solution level in the first reservoir. A detector may be positioned in the second reservoir to determine the solution level in the first reservoir without the splashing and other surface irregularities that may be present in the reservoir with the applicator surface. This feature allows for certain detectors (e.g., non-surface contacting detectors) to be used, which can provide a very accurate determination of solution level.

Claims 1-3, 5-7, 27, 41-44, 46, and 48-50 - 35 U.S.C. § 102(b)

The rejection of claims 1-3, 5-7, 27, 41-44, 46, and 48-50 under 35 U.S.C. § 102(b) as being anticipated by Switall is respectfully traversed.

In their previous response, Applicants respectfully submitted that Switall does not teach or suggest “a second reservoir operable to contain a supply of solution in fluid communication with the solution in the first reservoir such that the solution in the second reservoir has a solution level indicative of the solution level of the solution in the first reservoir” as recited in claim 1. Applicants also respectfully traversed the rejection of claim 27 based on Switall because Switall does not teach or suggest “an auxiliary reservoir operable to contain a supply of solution in fluid communication with the solution in the local reservoir such that the solution in the auxiliary reservoir has a solution level indicative of the solution level of the solution in the local reservoir.” The second reservoir in claim 1 and the auxiliary reservoir in claim 27 each provide a separate zone for more accurately detecting the solution level of the solution in the first reservoir or the local reservoir. This separate zone allows the solution level to be determined using a detector without the splashing and other surface irregularities that may be present in the first reservoir (or local reservoir) which result, in part, from the motion of the applicator surface through the solution in the first reservoir (or local reservoir).

In the final Office Action, the Examiner focused on the “fluid communication” aspect of claims 1 and 27.¹ Applicants respectfully submit that the remainder of that limitation (i.e., “in fluid communication . . . such that the solution in the second reservoir [or auxiliary

¹ See Office Action, mailed August 26, 2003, p. 20.

reservoir] has a solution level indicative of the solution level of the solution in the first reservoir [or local reservoir]”) distinguishes the present invention from Switall.

The Examiner asserted that “the two sensors of Switall are considered determining a variety of levels in the second container (i.e., reservoir)”² The Examiner considers the mixing tank 22 of Switall to be a second reservoir. Applicants note that the sensors, low liquid sensor 58 and high liquid sensor 60, are positioned in the mixing tank 22. Applicants do not dispute that the sensors 58,60 determine the level of solution in the mixing tank 22. However, Applicants do dispute the Examiner’s position that the level of solution in the mixing tank 22 is indicative of the solution level of the solution in the holding trays 24,26, each of which the Examiner considers to be a first reservoir.

For example, in Switall, silicone emulsion could continuously be supplied from the mixing tank 22 to the holding tray 24, such that the holding tray 24 remains full (e.g., the level of silicone emulsion in the holding tray 24 is at or just below the intake end 56a of the return pipe 56 at all times) as the level of silicone emulsion in the mixing tank 22 steadily decreases. In such a situation, the level of silicone emulsion in the holding tray 24 remains constant while the level of silicone emulsion in the mixing tank 22 decreases. In this regard, the silicone emulsion level in the mixing tank 22 is not indicative of the silicone emulsion level in the holding tray 24.

As another example, the applicator rollers 12,14 in Switall could be stopped for some reason, such that the system was offline. With the applicator rollers not delivering silicone emulsion to a paper web, no silicone emulsion would be leaving the system, and the holding

² *Id.*

trays 24,26 could be maintained at full levels without a need for more silicone emulsion to be added to the system. In this situation, the amount of silicone emulsion in the mixing tanks could be at any level between the low liquid sensor 58 and the high liquid sensor 60, yet the holding trays would be full. Again, Applicants note that such a situation illustrates how the emulsion level in the mixing tank 22 is not indicative of the emulsion level in either of the holding trays 24,26.

Thus, for at least the reason that Switall fails to teach or suggest a second reservoir operable to contain a supply of solution in fluid communication with the solution in the first reservoir such that the solution in the second reservoir has a solution level indicative of the solution level of the solution in the first reservoir, Applicants respectfully submit that claim 1 is patentable. As claims 2-3, 5-7, and 41 depend from claim 1 or an intervening dependent claim, Applicants likewise respectfully submit that these claims are also patentable.

For at least the reason that Switall fails to teach or suggest an auxiliary reservoir operable to contain a supply of solution in fluid communication with the solution in the local reservoir such that the solution in the auxiliary reservoir has a solution level indicative of the solution level of the solution in the local reservoir, Applicants respectfully submit that claim 27 is patentable. As claim 42 depends from claim 27, Applicants likewise respectfully submit that this claim is also patentable.

Claim 43 is similarly patentable as it recites a second volume of a solution having a top surface corresponding to a solution level of the second volume and separate from the top surface of the first volume, the solution level of the second volume being indicative of the solution level of the first volume. With regard to Switall, Applicants respectfully submit that

the level of the volume of silicone emulsion in the mixing tank 22 is not indicative of the level of the volume of emulsion in the holding trays 24,26. For at least this reason, Applicants respectfully submit that claim 43 is patentable. As claims 44, 46, and 48-50 depend from claim 43, Applicants likewise respectfully submit that these claims are also patentable.

In considering Applicants' previous remarks, the Examiner stated: "[A] recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim."³ Applicants respectfully traverse the Examiner's assertion that its claims recite the intended use of the claimed invention. The language related to fluid communication characterizes the structure and position of the first reservoir and second reservoir in claim 1, and the structure and position of the local reservoir and auxiliary reservoir in claim 27.

Further, contrary to the Examiner's position, Applicants respectfully assert that there are structural differences between the claimed invention and Switall, and that Switall is not capable of performing in the manner that Applicants' invention performs. Applicants submit that the mixing tank 22 in Switall is not operable to contain a supply of solution that is indicative of the solution level of the solution in one of the holding trays 24,26. As set forth above, the level of silicone emulsion in the mixing tank 22 of Switall is not indicative of the level of silicone emulsion in the holding trays 24,26 due to structural differences. In addition

³ *Id.*

to the differences set forth above, Applicants note that the mixing tank 22 of Switall is connected to two supply tanks 16,18, which supply silicone concentrate to the mixing tank 22. In this regard, the level of silicone emulsion in the mixing tank 22 is a function of the amount of silicone emulsion leaving the holding trays 24,26 through the intake pipes as well as the amount of silicone concentrate provided by the supply tanks 16,18 to the mixing tank 22.

Since the mixing tank 22 of Switall is the source of silicone emulsion for the holding trays 24,26, a pump 42 and regulator valves 52,54 are used to control the delivery of silicone emulsion to the holding trays 24,26. The operation of these devices also affects the level of silicone emulsion in the mixing tank 22, and these devices accordingly represent structural differences between Switall's system and Applicant's invention. Thus, Applicants respectfully request reconsideration of the rejection of claims 1, 27, and 43 based on Switall.

In addition to the reasons set forth above, Applicants respectfully traverse the rejection of claim 1 based on Switall because Switall does not teach or suggest "a detector for determining the solution level within the second reservoir, the detector operable to control an adjustment of the volume of the solution in the first reservoir" as recited in claim 1. Applicants previously submitted that this feature was not taught or suggested by Switall; however, the Examiner's Response to Arguments in the Final Office Action do not appear to address this contention. Switall uses a low level sensor and a high level sensor in its mixing tank 22.⁴ When the low level sensor senses a low level of liquid in the mixing tank 22, a signal is delivered to a control console which starts the transferring and delivery cycles of

⁴ See Switall, col. 3, ll. 53-57.

water and silicone concentrate to begin making a new batch of silicone emulsion.⁵ The sensors in the mixing tank 22 of Switall are not operable to control an adjustment of the volume of the silicone emulsion in the tray 24, which the Examiner characterizes as being a first reservoir; rather, the sensors in mixing tank 22 are operable to control an adjustment of the volume of silicone emulsion in the mixing tank 22 itself. This represents an example of another structural difference between Switall and the applicator of claim 1. Further, the low level and high level sensors of Switall are associated with the mixing tank 22 and are not indicative of the volume of silicone emulsion in the first tray 24.

In contrast, the detector as set forth in claim 1 of the present application is “operable to control an adjustment of the volume of the solution in the first reservoir.” For example, solution may be added to the first reservoir based on the detected solution level in the second reservoir. However, as set forth in Switall, the flow rate of silicone emulsion delivered to the trays is regulated by the flow regulators with respect to the flow rate through intake ends 56a and 56b of a return pipe 56.⁶ In other words, the amount of silicone emulsion added to a tray in Switall is dependent on the amount of silicone emulsion removed from the tray via the return pipe, and is not dependent on the amount of silicone emulsion in the mixing tank. For at least this additional reason, Applicants respectfully submit that claim 1 is patentable over Switall.

For at least the separate and independent reason that Switall does not teach or suggest a second reservoir operable to contain a supply of solution in fluid communication with the solution in the first reservoir such that the solution in the second reservoir has a solution level

⁵ See *id.*, col. 3, l. 59 to col. 4, l. 31.

⁶ See *id.*, col. 4, ll. 31-37

indicative of the solution level of the solution in the first reservoir, Applicants respectfully submit that claim 1 is patentable over Switall. For at least the separate and independent reason that Switall does not teach or suggest a detector for determining the solution level within the second reservoir, the detector operable to control an adjustment of the volume of the solution in the first reservoir, Applicants respectfully submit that claim 1 is patentable over Switall. As claims 2-3, 5-7, and 41 depend from claim 1 or an intervening dependent claim, Applicants likewise respectfully submit that these claims are also patentable.

Applicants also traverse the rejection of claim 5 because Switall does not teach or suggest a detector as claimed that “is operable to generate a signal to the flow controller to control the flow of the solution to the first reservoir.” Applicants respectfully note that the Examiner’s Response to Arguments in the Final Office Action does not appear to address this contention. The low level sensor 58 and the high level sensor 60 in the mixing tank 22 of Switall are not operable to generate a signal to a flow controller to control the flow of the solution to a holding tray; rather, the sensors in mixing tank 22 are operable to control the flow of silicone concentrate and water to the mixing tank 22 itself to prepare silicone emulsion. As set forth in Switall, the flow rate of silicone emulsion delivered to the trays is regulated by the flow regulators with respect to the flow rate through intake ends 56a and 56b of a return pipe 56.⁷ In addition and as shown in FIG. 1 of Switall, the control console 62 is not connected to the flow regulator valves 52,54 that control the delivery of silicone emulsion to the holding trays 24,26. For at least this additional reason, Applicants respectfully submit that claim 5 is patentable over Switall.

⁷ See *id.*, col. 4, ll. 31-37

Applicants respectfully traverse the Examiner's characterization of Switall with regard to claim 6. Switall states that the intake ends 56a and 56b "permit[] the gravitational return of the silicone emulsion from the holding trays 24 and 26 when the level of the silicone emulsion reaches the level of the intake ends 56a and 56b."⁸ Thus, to the extent that Switall contains an overflow level, the overflow levels in the holding trays 24 and 26 would correspond to the heights of the intake ends 56a and 56b of the return pipe 56. The Examiner asserts that "the sensor levels 60 and 58 can be the range of levels below the overflow level (note that the pipe entrances 56a and 56b lead to pipe 56, which empties into container (i.e., reservoir) 22 above the sensors 60 and 58)."⁹ However, the sensor levels 60 and 58 are positioned in the mixing tank 22 and correspond to the amount of silicone emulsion in the mixing tank 22. As set forth above, Applicants respectfully submit that the silicone emulsion level in the mixing tank 22 is not indicative of the silicone emulsion level in the holding tray 24, which the Examiner characterizes as being a first reservoir. Applicants therefore submit that Switall does not teach or suggest a first reservoir that includes an overflow level and a predetermined range of levels below the overflow level.

Further, Switall does not control the level of silicone emulsion within a predetermined range of levels below an overflow level. Switall relies on the intake ends 56a, 56b of the return pipe 56 to control the upper limit of silicone emulsion in the tray, and is not able to control the level of silicone emulsion in trays below the intake ends of the return pipe (i.e., the level is either above the intake end or not). In contrast, Applicants' invention does not rely on the overflow level to maintain the solution level in the first reservoir within the

⁸ *Id.*, col. 3, ll. 44-49.

⁹ Office Action, mailed August 26, 2003, p. 3.

predetermined range of levels. For at least the additional reason that Switall does not teach or suggest a first reservoir that includes an overflow level and a predetermined range of levels below the overflow level, Applicants respectfully submit that claim 6 is patentable.

In addition to reasons set forth above, Applicants also respectfully submit that claim 27 is patentable over Switall because Switall does not teach or suggest “a detector for monitoring the solution level within the auxiliary reservoir, wherein the detector is operable to generate a signal to the flow controller in response to the monitored solution level of the auxiliary reservoir.” Applicants previously submitted that this feature was not taught or suggested by Switall, but the Examiner’s Response to Arguments in the Final Office Action do not appear to address this contention. The Examiner asserts that the level sensors 58,60 in Switall are “operable to generate a signal to the flow controller (via control console 62) in response to the monitored solution level of the auxiliary such that the solution level in the local container (i.e., reservoir) is maintained within a predetermined range of levels (as defined by sensors 58 and 60).”¹⁰ Applicants respectfully disagree with this characterization of Switall. The sensors in the mixing tank 22 of Switall are not operable to generate a signal to a flow controller in response to a monitored solution level within the holding trays.. Rather, the sensors in mixing tank 22 are operable to control an adjustment of the volume of silicone emulsion in the mixing tank 22 itself. The low level and high level sensors of Switall are not indicative of the volume of silicone emulsion in the first tray 24. In addition and as shown in FIG. 1 of Switall, the control console 62 is not connected to the flow regulator valves 52,54 that control the delivery of silicone emulsion to the holding trays

¹⁰ *Id.*, p. 5.

24,26. These represent other examples of structural differences between Switall and the applicator of claim 27.

In contrast, the detector as set forth in claim 27 of the present application is “operable to generate a signal to the flow controller in response to the monitored solution level of the auxiliary reservoir.” For example, solution may be added to the local reservoir based on the detected solution level in the auxiliary reservoir. However, as set forth in Switall, the flow rate of silicone emulsion delivered to the trays is regulated by the flow regulators with respect to the flow rate through intake ends 56a and 56b of a return pipe 56. In other words, the amount of silicone emulsion added to a tray in Switall is dependent on the amount of silicone emulsion removed from the tray and is not dependent on the amount of silicone emulsion in the mixing tank. For at least this additional and independent reason, Applicants respectfully submit that claim 27 is patentable over Switall. As claim 42 depends from claim 27, Applicants likewise respectfully submit that this claims is also patentable.

Independent claim 43 recites “a detector for determining the solution level of the second volume of the solution, the detector operable to control an adjustment of the first volume of the solution.” As noted above, Switall does not teach or suggest this feature of claim 43. Thus, for at least this additional and independent reason, Applicants respectfully submit that claim 43 is patentable over Switall.

Applicants also traverse the rejection of claim 46 because Switall does not teach or suggest a detector as claimed that “is operable to generate a signal to the flow controller to control the flow of the solution to the first volume of solution.” The low level sensor 58 and the high level sensor 60 in the mixing tank 22 of Switall are not operable to generate a signal

to a flow controller to control the flow of the solution to a holding tray; rather, the sensors in mixing tank 22 are operable to control the flow of silicone concentrate and water to the mixing tank 22 itself to prepare silicone emulsion. As set forth in Switall, the flow rate of silicone emulsion delivered to the trays is regulated by the flow regulators with respect to the flow rate through intake ends 56a and 56b of a return pipe 56.¹¹ In addition and as shown in FIG. 1 of Switall, the control console 62 is not connected to the flow regulator valves 52,54 that control the delivery of silicone emulsion to the holding trays 24,26. For at least this additional reason, Applicants respectfully submit that claim 43 is patentable over Switall.

For all of the foregoing reasons, claims 1-3, 5-7, 41-44, 46, and 48-50 are not taught or suggested by Switall and the Examiner is respectfully requested to withdraw the rejection.

Claims 1-3, 5-7, 27, 41-44, 46, and 48-50 - 35 U.S.C. § 103(a)

The rejection of claims 1-3, 5-7, 27, 41-44, 46, and 48-50 under 35 U.S.C. § 103(a) as being unpatentable over Paul in view of Switall is respectfully traversed.

Paul relates to an apparatus for applying liquid to advancing filaments that includes a pair of nestable containers.¹² The outer or second container 50 is adapted to slideably receive the first container 22 and to capture the excess liquid from first container 22 and any spray thrown from the filaments or the like deposited on a front wall of the first container 22.¹³

The Examiner correctly points out that Paul “does not disclose a second container (i.e., reservoir) or detector as claimed.”¹⁴ For reasons set forth in the preceding section and

¹¹ See *id.*, col. 4, ll. 31-37

¹² See Paul, Abstract.

¹³ See *id.*, col. 2, ll. 40-45.

¹⁴ Office Action, mailed August 26, 2003, p. 6.

below, Applicants respectfully submit that Switall does not cure the deficiencies of Paul noted by the Examiner and that neither Switall nor Paul disclose a second reservoir as recited in claim 1, an auxiliary reservoir as recited in claim 27, a second volume of solution as recited in claim 43, or a detector as recited in each of independent claims 1, 27, and 43.

With regard to claim 1, Paul does not disclose a second reservoir or detector as presently claimed. In the previous section, Applicants demonstrated that Switall also fails to teach or suggest a second reservoir or detector as claimed. In particular, nothing in Switall teaches or suggests a second reservoir operable to contain a supply of solution in fluid communication with the solution in the first reservoir such that the solution in the second reservoir has a solution level indicative of the solution level of the solution in the first reservoir. Switall also does not teach or suggest a detector for determining the solution level within the second reservoir and operable to control an adjustment of the volume of the solution in the first reservoir. In order to conserve space, Applicants will not re-state their position regarding Switall, but instead refer the Examiner to the above discussion.¹⁵

Applicants do note and again traverse the Examiner's statement that the solution level in the second container of Switall (the mixing tank 22) is indicative of the solution level in the first containers (the holding trays 24,26). Applicants also respectfully submit that the Examiner's assertion that "the detector [in Switall is] operable to control an adjustment of the volume of the solution in first container (i.e., reservoir) such that the solution level in the first container (i.e., reservoir) is maintained within a predetermined range of levels" is incorrect.¹⁶ As noted above, the volume of the silicone emulsion in the holding trays of Switall is not adjusted

¹⁵ Applicants also refer the Examiner to their above traversals of the rejections of claims 5-6.

¹⁶ Office Action, mailed August 26, 2003, p. 7.

based on the solution level of silicone emulsion in the mixing tank. As stated in the previous section, Applicants respectfully submit that this incorrectly describes Switall.

Accordingly, Applicants respectfully submit that neither Paul nor Switall teach or suggest “a second reservoir operable to contain a supply of solution in fluid communication with the solution in the first reservoir such that the solution in the second reservoir has a solution level indicative of the solution level of the solution in the first reservoir” as recited in claim 1. Applicants also respectfully submit that both Paul and Switall fail to teach and/or suggest “a detector for determining the solution level within the second reservoir, the detector operable to control an adjustment of the volume of the solution in the first reservoir” as claimed in claim 1. For each of these independent reasons, Applicants respectfully submit that claim 1 is patentable over Paul in view of Switall. As claims 2-3, 5-7, and 41 depend from claim 1 or an intervening dependent claim, Applicants likewise respectfully submit that these claims are also patentable.

With regard to claim 27, Paul fails to teach or suggest a number of features set forth in claim 27, including features which are also not taught or suggested in Switall. In the previous section, Applicants demonstrated that Switall does not teach or suggest (1) “an auxiliary reservoir operable to contain a supply of solution in fluid communication with the solution in the local reservoir such that the solution in the auxiliary reservoir has a solution level indicative of the solution level of the solution in the local reservoir” or (2) “a detector for monitoring the solution level within the auxiliary reservoir, wherein the detector is operable to generate a signal to the flow controller in response to the monitored solution level of the auxiliary reservoir.” Paul also does not teach these elements as claimed.

Accordingly, Applicants respectfully submit that claim 27 is patentable over Paul in view of Switall. As claim 42 depends from claim 27, Applicants likewise respectfully submit that this claim is also patentable.

With regard to claim 43 (presented as a new claim in the previous amendment), the Examiner only stated that it was “rejected on similar grounds as claims 1 and 27.” With regard to claim 1, the Examiner correctly points out that Paul “does not disclose a second container or detector as claimed.”¹⁷ Likewise, Paul also does not disclose a second volume of the solution or detector as claimed in claim 43. The Examiner cites Switall as curing these deficiencies in Paul. However, in the previous section, Applicants demonstrated that Switall fails to teach or suggest a second volume of the solution or detector as claimed. In particular, nothing in Switall teaches or suggests a second volume of the solution having a top surface corresponding to a solution level of the second volume and separate from the top surface of the first volume, the solution level of the second volume being indicative of the solution level of the first volume. Switall also does not teach or suggest a detector for determining the solution level of the second volume of the solution, the detector operable to control an adjustment of the first volume of the solution. Applicants do note and again traverse the Examiner’s statement that the solution level in the second container of Switall (the mixing tank 22) is indicative of the solution level in the first containers (the holding trays 24,26). Applicants also respectfully submit that the Examiner’s assertion that “the detector [in Switall is] operable to control an adjustment of the volume of the solution in the first container (i.e., reservoir) such that the solution level in the first container (i.e., reservoir) is

¹⁷ Office Action, mailed August 26, 2003, p. 6.

maintained within a predetermined range of levels” is incorrect.¹⁸ The volume of the silicone emulsion in the holding trays of Switall is not adjusted based on the solution level of silicone emulsion in the mixing tank. Applicants respectfully submit that this incorrectly describes Switall.

Accordingly, Applicants respectfully submit that neither Paul nor Switall teach or suggest “a second volume of the solution having a top surface corresponding to a solution level of the second volume and separate from the top surface of the first volume, the solution level of the second volume being indicative of the solution level of the first volume” as recited in claim 43. Applicants also respectfully submit that both Paul and Switall fail to teach and/or suggest “a detector for determining the solution level of the second volume of the solution, the detector operable to control an adjustment of the first volume of the solution” as claimed in claim 43. For each of these independent reasons, Applicants respectfully submit that claim 43 is patentable over Paul in view of Switall. As claims 44, 46, and 48-50 depend from claim 43 or an intervening dependent claim, Applicants likewise respectfully submit that these claims are also patentable.

Claims 3, 4, 43, and 44 - 35 U.S.C. § 103(a)

The rejection of claims 3, 4, 43, and 44 under 35 U.S.C. § 103(a) as being unpatentable over Switall as applied to claim 1 or alternatively over Paul in view of Switall, and further in view of Akimoto is respectfully traversed.

¹⁸ Office Action, mailed August 26, 2003, p. 7.

Applicants have previously demonstrated that claim 1 is patentable over Switall taken individually. Because claims 3 and 4 depend from claim 1, Applicants likewise submit that claims 3 and 4 are also patentable over Switall taken individually. Applicants have previously demonstrated that claim 43 is patentable over Switall. Because claim 44 depends from claim 43, Applicants likewise respectfully submit that claim 44 is also patentable over Switall taken individually.

Akimoto relates to a device for coating semiconductor wafers with resist solution. Akimoto uses an optical sensor outside of a resist bottle to detect the top level of resist solution in the bottle.¹⁹

Claims 3 and 4 depend from claim 1. Applicants have previously demonstrated that claim 1 is patentable over Paul in view of Switall. Akimoto fails to cure the deficiencies of Paul and Switall. Therefore, Applicants respectfully submit that claim 1 is patentable over Paul in view of Switall and Akimoto. As claims 3 and 4 depend from claim 1, Applicants likewise respectfully submit that these claims are also patentable.

Applicants have previously demonstrated that claim 43 is patentable over Paul in view of Switall. The Examiner cites Akimoto as “disclos[ing] that it is known to use an optical detector . . . for monitoring the level of a solution in a coating apparatus.”²⁰ However, Akimoto fails to otherwise cure the deficiencies of Paul and Switall with regard to claim 43. Therefore, Applicants respectfully submit that claim 43 is patentable over Paul in view of Switall and Akimoto. As claim 44 depends from claim 43, Applicants likewise respectfully submit that this claim is also patentable.

¹⁹ Akimoto, col. 4, ll. 39-41.

²⁰ Office Action, mailed August 26, 2003, p. 11.

As noted above, Applicants' invention allows for the accurate measurement of a solution level in the first reservoir by providing a separate zone with a solution level that is indicative of the solution level in the first reservoir. The detector may be positioned in this zone to determine the solution level without the splashing and other surface irregularities that may be present in the zone having applicator surface. This feature allows for certain detectors (e.g., non-surface contacting detectors) to be used, which can provide a very accurate determination of solution level. Such features are not taught or suggested by the references cited by the Examiner.

Claim 8 - 35 U.S.C. § 103(a)

The rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Paul and Switall as applied to claim 1 and claim 27 above, and further in view of Reese is respectfully traversed.

Reese relates to a binder applicator that includes a housing containing a sump or reservoir for a binder or size solution, at least a pair of rolls having an endless belt constructed and arranged to ride over the surface of the rolls.²¹ A slot is positioned in the back wall of the housing to permit the free passage of ambient air entering the front of the housing through the applicator housing and out at a point of removed from the front opening.²²

Applicants have previously set forth the deficiencies of Paul and Switall with regard to claim 1. Reese fails to cure these deficiencies. Because claim 8 depends from claim 1,

²¹ Reese, col. 1, ll. 63-67.

²² *Id.*, col. 2, ll. 7-12.

Applicants respectfully submit that claim 8 is patentable over Paul in view of Switall and Reese.

Claims 10-13, 15, 17, 28, 30, 31, 32, and 47 - 35 U.S.C. § 103(a)

The rejection of claims 10-13, 15, 17, 28, 30, 31, 32, and 47 under 35 U.S.C. § 103(a) as being unpatentable over Paul, Switall, and Reese as applied to claim 8 or Paul and Switall as applied to claims 27 and 43, and further in view of Schweppe is respectfully traversed.

Schweppe relates to a binder applicator for applying liquid binder to textile fibers.²³ The binder applicator of Schweppe provides an applicator surface which is concave in shape.²⁴ A housing for the applicator roll is provided with an inlet and outlet for continuous feed of solutions to the applicator roll.²⁵ The housing is provided with an aperture or port through which the roll protrudes so that it can be contacted by the textile fiber or strand to be coated.²⁶

Applicants have previously set forth the deficiencies of Paul, Switall, and Reese with regard to claim 1. Schweppe also fails to cure these deficiencies as it fails to teach or suggest a second reservoir or a detector as claimed. Accordingly, Applicants respectfully submit that claim 1 is patentable over Paul in view of Switall, Reese and Schweppe. Because claims 10-13, 15, and 17 depend from claim 1 or an intervening dependent claim, Applicants also respectfully submit that claims 10-13, 15, and 17 are patentable over Paul in view of Switall, Reese and Schweppe.

²³ See Schweppe, Abstract.

²⁴ See *id.*, col. 1, ll. 54-55.

²⁵ See *id.*, col. 1, ll. 64-66.

²⁶ See *id.*, col. 2, ll. 35-37.

Applicants have previously set forth the deficiencies of Paul and Switall with regard to claim 27. Both Reese and Schweppe fail to cure these deficiencies. Accordingly, Applicants respectfully submit that claim 27 is patentable over Paul in view of Switall, Reese, and Schweppe. Because claims 28, 30, 31, and 32 depend from claim 27 or an intervening dependent claim, Applicants also respectfully submit that claims 28, 30, 31, and 32 are patentable over Paul in view of Switall, Reese and Schweppe.

Applicants have previously set forth the deficiencies of Paul and Switall with regard to claim 43. Both Reese and Schweppe fail to cure these deficiencies. Accordingly, Applicants respectfully submit that claim 43 is patentable over Paul in view of Switall and Schweppe. Because claim 47 depends from claim 43, Applicants also respectfully submit that claim 47 is patentable over Paul in view of Switall and Schweppe.

Claim 14 - 35 U.S.C. § 103(a)

The rejection of claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Paul, Switall, Reese, and Schweppe as applied to claim 10, and further in view of Evans is respectfully traversed.

Evans relates to a yarn dyeing apparatus that comprises a roller 11 mounted for rotation about a horizontal axis and defining a moving yarn support surface, a plurality of dye-stuff receiving formations 12, dyestuff applicator means 13, yarn guide means 20, and a nip roller 15 in contact with the roller 11.²⁷ The nip roller 15 is a ground roller, and a doctor blade 16 bears against the surface thereof, such blade removing from the nip roller 15 any

²⁷ See Evans, col. 1, ll. 62-70.

dyestuff picked up from the yarn or from the roller 11 and passing the dyestuff to a reservoir 17.²⁸

Applicants have previously set forth the deficiencies of Paul, Switall, Reese, and Schweppe with regard to claim 1. Evans also fails to cure these deficiencies as it fails to teach or suggest a second reservoir or a detector as claimed. Accordingly, Applicants respectfully submit that claim 1 is patentable over Paul in view of Switall, Reese, Schweppe, and Evans. Because claim 14 depends from claim 1 or an intervening dependent claim, Applicants also respectfully submit that claims 14 is patentable over Paul in view of Switall, Reese, Schweppe, and Evans.

Claim 16 - 35 U.S.C. § 103(a)

The rejection of claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Paul, Switall, Reese, and Schweppe as applied to claim 15, and further in view of Schmandt is respectfully traversed.

Schmandt relates to a movable applicator system for applying a size and/or binder to advancing glass filaments. The apparatus of Schmandt may include a trough 180 along the upper front edge of the frame immediately adjacent the filaments but not in contact therewith when the applicator assembly is in the production position to collect and drain away any water or foreign matter that might collect at that portion of the frame.²⁹ The apparatus of Schmandt may also include a movable cover 176, which is adapted to move the filaments away from the applicator surface such that the sizer binder is not transferred to the advancing

²⁸ See *id.*, col. 2, ll. 28-32.

²⁹ See Schmandt, col. 4, ll. 26-32.

filaments.³⁰ The movable cover 176, when in the open or primary product position, is adapted to direct a portion of the entrained air moving along with the advancing filaments along downwardly and away from the filaments in a smooth continuous manner to reduce the amount of air washing over the region of the applicator surface in contact with the advancing filaments and to provide a degree of protection for the applicator assembly.³¹

Applicants have previously set forth the deficiencies of Paul, Switall, Reese, and Schweppe with regard to claim 1. Schmandt also fails to cure these deficiencies as it fails to teach or suggest a second reservoir or a detector as claimed. Accordingly, Applicants respectfully submit that claim 1 is patentable over Paul in view of Switall, Reese, Schweppe, and Schmandt. Because claim 16 depends from claim 1 or an intervening dependent claim, Applicants also respectfully submit that claims 16 is patentable over Paul in view of Switall, Reese, Schweppe, and Schmandt.

Claim 29 - 35 U.S.C. § 103(a)

The rejection of claim 29 under 35 U.S.C. § 103(a) as being unpatentable over Paul, Switall, Reese, and Schweppe as applied to claim 28, and further in view of Akimoto is respectfully traversed.

Claim 29 depends from claims 27 and 28. Applicants have previously set forth reasons why claims 27 and 28 are patentable over Paul in view of Switall, Reese, and Schweppe. Akimoto fails to cure the deficiencies of these references. Accordingly,

³⁰ See *id.*, col. 4, ll. 35-43.

³¹ See *id.*, col. 4, ll. 54-62.

Applicants respectfully submit that claim 29 is patentable over Paul in view of Switall, Reese, Schweppe, and Schmandt.

Claims 28, 30, and 31 - 35 U.S.C. § 103(a)

The rejection of claims 28, 30, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Switall as applied to claim 27, and further in view of Schweppe is respectfully traversed.

With regard to the application of Switall to claim 27, Applicants have previously set forth that Switall fails to teach or suggest “an auxiliary reservoir operable to contain a supply of solution in fluid communication with the solution in the local reservoir such that the solution in the auxiliary reservoir has a solution level indicative of the solution level of the solution in the local reservoir.” Applicants have also previously set forth that Switall fails to teach or suggest “a detector for monitoring the solution level within the auxiliary reservoir, wherein the detector is operable to generate a signal to the flow controller in response to the monitored solution level of the auxiliary reservoir.” For each of these reasons, Applicants have respectfully submitted that claim 27 is patentable over Switall.

Schweppe also does not teach or suggest these features of Applicants’ invention and, therefore, does not cure the deficiencies of Switall. Thus, claim 27 is patentable over Switall in view of Schweppe. Because claims 28, 30, and 31 depend from claim 27 or an intervening dependent claim and because claim 27 is patentable over Switall in view of Schweppe, Applicants likewise submit that claims 28, 30, and 31 are patentable.

Claim 29 - 35 U.S.C. § 103(a)

The rejection of claim 29 under 35 U.S.C. § 103(a) as being unpatentable over Switall and Schweppe as applied to claim 28, and further in view of Akimoto is respectfully traversed.


Applicants have previously discussed the patentability of claims 27 and 28 over Switall in view of Schweppe. Akimoto does not cure the deficiencies of Switall and Schweppe for reasons set forth above. Therefore, Applicants also respectfully submit that claims 27 and 28 are patentable over Switall in view of Schweppe and Akimoto. Because claim 29 depends from claims 27 and 28, Applicants likewise respectfully submit that claim 29 is patentable.

CONCLUSION

For the foregoing reasons, a favorable Office Action is respectfully solicited. The Examiner is respectfully invited to contact J. Jason Link at 336.607.7443 or Charles W. Calkins at 336.607.7315 to discuss any matter relating to this application.

Respectfully submitted,

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